

lesion of the cortex capable of being made the basis of reliable inductions.

He has represented together on a series of figures of different aspects of the cerebral hemispheres the position and extent of the lesion recorded in each case; and he has carefully tabulated the symptoms observed, whether positive or negative. In determining the functions of the parts he follows three methods mutually complementary. First, the method of negative instances;—all the lesions being taken together in which a certain function was not affected. Secondly, the percentage method;—the proportion of cases being indicated in which a certain region was diseased, and the relative frequency of the symptom in question. Thirdly, the method of positive instances, *i.e.* all the cases of disease in which a particular affection was observed;—a method used mainly as an adjunct to the other methods, and not of itself of great force. By these methods he arrives at the determination of certain areas or centres which he terms *absolute*, lesion of which always causes the same symptom. He defines more or less vaguely absolute centres for the upper and lower limbs more especially. In addition to the absolute areas he defines a number of *relative* areas, or centres, for other movements, and different forms of sensibility; the relative areas being those in which lesion does not always, but only *frequently*, cause affection of the function with which they are supposed to be in relation.

The elaborate and carefully prepared figures which accompany the work indicate clearly the areas of latent lesions, as well as the position and extent of the absolute and relative areas which the author describes.

Apart altogether from Prof. Exner's deductions, one thing clearly brought out by the facts is the comparative impotence of the fortuitous experiments of disease as regards the determination with any degree of accuracy of the exact position and limits of any centre whatever. Prof. Exner has a deservedly high reputation as a physiologist, but the manner in which he has handled the facts of disease as set forth in this work is not one on which he can be congratulated.

In his selection of instances he has excluded, without assigning valid reasons, many cases of the utmost importance; and he has included, as instances of localised cortical disease, a large number of cerebral tumours, which by the general consent of pathologists, are excluded, owing to the indirect effect which tumours exert on other parts—effects which can never be estimated with any degree of certainty. In his meagre "sammlung" of 168 instances he has included over thirty cases of tumour, thereby introducing such a large percentage error as to vitiate the whole of his deductions however accurately they may be drawn from his premises. Causal relationship is too readily assumed when none is proved. Mere frequency of occurrence, on which alone he founds his peculiar notion of relative centres, by no means justifies the assumption of causal connection. These so-called relative areas are seen to be capable of destruction without discoverable symptoms, and the same region seems to play many parts, being indifferently a centre for the leg, or the arm, or the face, speech, sight, and so forth. Our author's arguments in favour of his relative centres are in reality not more cogent than would be the inference that because injuries of the foot are frequently associated with

disturbance of the circulation, therefore the foot is a relative centre of the circulation, whatever that may mean. If Prof. Exner's localisation of relative centres had any foundation in fact, it would be nothing short of a *reductio ad absurdum* of the whole doctrine of localisation. It is a marvel how a believer in localisation, as Prof. Exner declares himself, can see no incongruity or inconsistency in admitting that the absolute centre for the leg may also be a relative centre of vision. A consistent advocate of localisation might as well admit that the leg may frequently, relatively, or in some way or other be used as an organ of vision.

Among other strange things in this book is the kind of evidence on which our author seeks to establish differences between the hemispheres as to the extent and relation of the sensory and motor centres. In one of his figures of the left hemisphere there is an area in the occipital lobe so coloured as to indicate the position of an absolute centre for the arm, meaning that lesion of this area causes paralysis of the arm in 100 per cent. of the cases. On referring to the evidence we find that the 100 per cent. means only *one* case, a case, moreover, in which there was profound impairment of all the cerebral functions, and extensive lesion elsewhere of the left hemisphere, invading also what is generally recognised as the motor area proper. It is true that in his remarks on this case our author doubts its conclusiveness as regards the arm centre; but inasmuch as his instances give him a case of lesion of the same region in the right hemisphere without any symptoms whatever, he considers it beyond all doubt that this area has a more intimate relation with the upper extremity in the left hemisphere than in the right. It would be difficult to believe that this was written seriously, were it not that a similar style of reasoning is so prevalent throughout the book. Though Prof. Exner advocates the localisation of function in the cerebral hemispheres, the support he gives it is of the most equivocal description.

DAVID FERRIER

THE ROD IN INDIA

The Rod in India. Being Hints how to obtain Sport, with Remarks on the Natural History of Fish, their Culture and Value, and Illustrations of Fish and Tackle. By H. S. Thomas, F.L.S., of the Madras Civil Service. Second Edition. (London: Hamilton, Adams, and Co., 1881.)

THIS is a very much enlarged edition of a very excellent and pleasant book, the first edition of which appeared not quite eight years ago. The author asserts that there is as good fishing, in the angler's sense, of course, of this word, to be had in India as in England; and to prove it we have this goodly royal octavo volume, of over 400 pages and 25 plates. Now, though the fishing is good, it soon becomes apparent that it is something quite peculiar; for though our author himself knew thoroughly well how to "circumvent" a trout in England, and had often done successful battle with the lordly salmon in more northern climes, yet at first he could make nothing of the Mahseer in India, and lost a frightful lot of time in learning the manners and the customs of this Oriental gentleman. The reader of this volume should not cer-

tainly be in such a plight, for he will find in it the minutest instructions for his guidance, and there seems not a *trait* in the character of this and the other freshwater fishes to be ordinarily met with in India that has not been scarned and studied by its author with the intent of beguiling these fishes to their own destruction.

Of the fish to be caught in Indian waters the best is the Mahseer (*Barbus tor*). It is the best from the sportsman's point of view, as it gives him most to do; for who that is a sportsman cares to haul up a dead pike on a night-line? and who that is a sportsman but must care for a fish that can attack as follows?—

“The Mahseer has a greater means than our salmon of putting on steam, and has the habit of always putting it on at once, energetically and unsparingly. His first rush is a mighty one, no doubt; that once made, his strength is, in comparison with the northern fish, comparatively soon exhausted. Other rushes he will make, but his first is the dangerous one; then it is that the final issue of the campaign is practically decided. Be one too many for him then, and you may be grimly satisfied that all else he can do will not avail him; you may count on making him your own. Then it is that you must wait upon him diligently. If you have not got all free, the connection between you and your new friend will be severed within a moment of your making each other's acquaintance. If you should have carelessly allowed the line to have got a turn around the tip of your rod, or have let any slack near the hand become kinked ever so little, or twisted over the butt or hitched in the reel or a button, then it is that not one moment's law is given you for the readjustment of such little matters. There is one violent tug, and an immediate smash:

“‘The waters wild go o'er your child,
And you are left lamenting.’

Reader, it takes an eye and a hand, and tact and readiness of mind, as well as a rod and a line and a fly, to catch a salmon; but it takes all these, and something more, to catch a Mahseer.”

Although it is well known that a fisherman does not catch his fish for the pleasure of eating them—this being quite a secondary matter—still it is fair towards the Mahseer to mention that when in good condition they are excellent, so rich that one needs no condiment with them, so well flavoured as in this respect to occupy a rank between a salmon and a trout. The best size for flavour is between six and seven pounds; but they are good eating when from two to ten pounds in weight; under the former size they are too bony, over the latter too oily.

The chapter on the natural history of this fish is one of the most interesting in the volume, and it is scarcely necessary to add that there are minute details of how to “circumvent” him, of how to spin for him, and of how to tempt him with a fly, and of how, when, and where to fish for him. When we add that over one quarter of the volume is taken up with this fish, it will be evident at once that he ranks as a lord among the freshwater fishes of India; but we have full details also of the Carnatic Carp (*Barbus carnaticus*), a nearly allied species to the Mahseer, running to twenty-five pounds in weight, taking a fly, having a fancy for a No. 5 or 6 Limerick, and giving good sport.

There are also excellent chapters on many much smaller fishes than these—fishes for light rods, and giving very enjoyable sport; several, like the Black Spot, being dwellers in ponds.

Some information is also given as to the attempts made to stock ponds in India, and there is a very full list given of fishing localities. The lithographs which accompany the volume are very good, and several of them are coloured. To the sportsmen of India this work will be quite indispensable and quite a boon, and further, to all interested in the resources of [an Empire presided over by our Queen, the volume will afford an insight into the importance of its freshwater fishes that they will find, we believe, nowhere else.

OUR BOOK SHELF

Book of the Black Bass: comprising its Complete Scientific and Life History; together with a Practical Treatise on Angling and Fly-Fishing, and a Full Description of Tools, Tackle, and Implements. By James A. Henshall, M.D. Illustrated. (Cincinnati: Robert Clarke and Co., 1881.)

THE author in this volume endeavours, and we think succeeds, in giving to the Black Bass its proper place among the freshwater game fishes of North America; and undoubtedly the reader will find himself taking an interest in this fish as he reads this enthusiastic account about it. No doubt the first and second chapters will be most tedious reading, and yet they are full of interest as showing how tangled may become the scientific nomenclature even of a well-known fish. As the sum and substance of these chapters we find the two species of the genus *Micropterus*, standing, the one as *M. dolomieu*, and the other as *M. salmoides*, and it is of these two respectively—the small-mouthed Black Bass and the large-mouthed Black Bass—that the author writes. Both species are very active, muscular, and voracious, with hard and tough mouths, are very bold in biting, and when hooked exhibit gameness and endurance second to no other fish. Both give off the characteristic musky odour when caught. They generally inhabit the same waters. These Black Bass are wholly unknown in the Old World, except where quite recently introduced. Their original habitat is remarkable for its extent, for with the exception of the New England States and the Atlantic seaboard of the Middle States, it comprises the whole of the United States east of the Rocky Mountains, Ontario, and, last, Mexico. Of late years this distribution has been greatly extended. These fish are very prolific, and rapid growers where food is plentiful. In northern waters six to eight pounds is about the limit of their weight, but in Florida they are sometimes met with up to twelve and fourteen pounds. They have been several times imported into England, and we believe that those brought over in 1879 at the expense of the Marquis of Exeter have succeeded well. The fisherman who reads the latter portion of this volume will find many pleasant anecdotes and stories in connection with the gentle art, and should he happen to frequent those waters where the Black Bass are to be found, he will get many a precious wrinkle which he might have otherwise not known. The author's parting injunction is, “Always kill your fish as soon as taken from the water, and *ever* be satisfied with a moderate creel. By so doing your angling days will be happy and your sleep undisturbed, and you and I and the fish we may catch can say—

“‘The lines are fallen to us in pleasant places.’”

An Introduction to Determinants, with numerous Examples. By William Thomson, M.A., B.Sc. (Edinburgh: Jas. Thin, 1882.)

THIS text-book is very accurately described by its title. It belongs to a class of which many examples have appeared on the continent for use in the secondary